NATURAL RESOURCES CONSERVATION SERVICE

RESIDUE MANAGEMENT, RIDGE TILL

(Acre)

CODE 329C

DEFINITION

Managing the amount, orientation, and distribution of crop and other plant residues on the soil surface year-ground, while growing crops on preformed ridges alternated with furrows protected by crop residue.

PURPOSES

This practice may be applied as part of a conservation management system to support one or more of the following purposes:

1. Reduce sheet and rill erosion.
2. Reduce wind erosion.
3. Maintain or improve soil organic matter content and tilth.
4. Modify cool wet site conditions.
5. Provide food and escape cover for wildlife.

CONDITIONS WHERE PRACTICE APPLIES

1. This practice applies to all cropland and other land where crops are grown.
2. This standard includes tillage and planting methods commonly referred to as ridge till or ridge planting. It does not include no-till planting on ridges, or bedding or listing operations, which bury crop residues.

CRITERIA

General Criteria Applicable to All Purpose Named Above

1. Following crop harvest and any secondary residue removal, residues shall be maintained (except for residue chopping) until planting with no additional disturbance except for normal weathering.
2. Ridge height shall be maintained throughout the harvest and winter seasons by controlling equipment or livestock traffic.
3. After planting, residues shall be maintained in the furrows until the ridges are rebuilt by cultivation. Ridges shall be rebuilt to their original height and shape during the last row cultivation.
4. Loose residues to be retained on the field shall be uniformly distributed on the soil surface. Cultivation and planting equipment designed to operate on ridges shall be used, such as cultivators equipped with ridging attachments, and planters equipped with ridge planting attachments such as row cleaning devices and guidance systems.

Additional Criteria to Reduce Sheet and Rill Erosion

1. The design of this practice for erosion control assumes approximately 90% surface cover after harvest. Surface cover does not measure the performance of this practice after planting.

2. The orientation of ridges in relation to the contour, shall be determined using current approved erosion prediction technology found in the FOTG. Calculations shall account for the effects of other practices in the conservation management system. Partial removal of residue by means such as baling or grazing shall be limited to retain the amount needed.

3. Planting and fertilizer placement shall disturb no more than one third of the row width. Soil and residue removed from the top of the ridge shall be moved into the furrow between the ridges.

4. The minimum ridge height shall be at least 3 inches higher than the furrow between the ridges after planting.

5. The ridge shall be shaped to prevent erosion along the row by directing runoff to the protected furrow area.

Additional Criteria to Reduce Wind Erosion

1. The amount and orientation of residue needed during periods when wind erosion is expected to occur, shall be determined using current approved wind erosion prediction technology in the FOTG. Partial removal of residue by means such as baling or grazing shall be limited to retain the amount needed. The minimum ridge height shall be at least 3 inches higher than the furrow between the ridges after planting.

2. Calculations shall account for the effects of ridge height, spacing, and direction and of other practices in the conservation management system.

Additional Criteria to Modify Cool Wet Site Conditions.

Ridge height prior to planting shall not be less than 6 inches. After planting, the top of the ridge shall be maintained at least 3 inches higher than the furrow between the ridges.

Additional Criteria to Provide Food and Escape Cover for Wildlife.

The amount of residue and height of stubble needed to provide cover during winter months shall be determined using the Ohio Habitat Evaluation Procedure. Residues shall not be removed unless it is determined by the habitat evaluation procedure that removal will not adversely affect habitat values. Stubble shall be maintained standing over winter.

CONSIDERATIONS

1. Burning of plant residue or excess removal of residue by such means as baling or grazing often produces negative impacts on resources. These activities should not be performed without full evaluation of impacts on soil, water, animal, plants, and air resources.

2. Ridge till may be practiced continuously throughout some crop sequences, or may be managed as part of a residue management system which includes other tillage and planting methods such as mulch till or no till. In mixed systems, ridges must be periodically re-established.

3. Production of adequate amounts of crop residues necessary for the proper functioning of this practice can be enhanced by selection of high residue producing crops and crop varieties in the rotation, use of cover crops, and adjustment of plant populations and/or row spacings.

4. By providing a choice of weed control methods, this practice can reduce herbicide requirements when used in a conservation management system.

5. Where improvement of soil tilth is a concern, continuous ridge planting will allow organic material to accumulate in the surface horizon. Reconstruction of ridges in the same row area year after year will maximize organic matter buildup and biological activity in the row.

6. Where ridges direct runoff to areas of concentrated flow, these areas can be protected by grassed waterways, water and sediment control basins, underground outlets, or other suitable practices.

7. Leaving rows of unharvested crop standing at intervals across the field can enhance the value of residues for wildlife habitat.

PLANS AND SPECIFICATIONS

Specifications for establishment and operation of this practice shall be prepared for each field or treatment unit according to the Criteria, Considerations, and Operation and Maintenance described in this standard. Specifications shall be recorded using approved job sheet 329c, narrative statements in the conservation plan, or other acceptable documentation. The minimum documentation requirements for this practice is outlined on the last page of this standard.

Operation and Maintenance

1. Adjusting the planter, ridge cultivator, and fertilizer application equipment to manage the planned ridge height and residue amounts.

2. Adjusting the equipment tire spacing to avoid running on the ridges.

REFERENCES

National Standard Residue Management, Ridge Till (329c), June 1994

Practice Documentation For:	*Residue Management Ridge Till 329C*
The following documentation must be in the case folder or engineering subfolder.	
Practice Planning	
1. Is the practice part of a conservation plan? 2. Have the purpose(s) for the practice been identified? 3. Is the location of the practice identified on a map or plan drawing?	
Practice Design	
Have the following design criteria been addressed? 1. Crop rotation 2. Planned residue types and cover (% or Pounds) during critical periods. 3. Ridge height and spacing. 4. Acres planned	
Practice Installation / Application	
Does the practice meet the minimum criteria for the planned purpose(s)?	
Have the following criteria been documented in the assistance notes or practice jobsheet? 1. Residue types and amount maintained. 2. Ridge heights and spacings. 3. Acres applied.	
Practice Deficiencies	
If applicable, have the practice deficiencies been communicated with the decisionmaker?	
Practice Maintenance	
Have the following maintenance actions been communicated to the decisionmaker? 1. Adjusting the planter, ridge cultivator, and fertilizer application equipment to manage the planned ridge height and residue amounts. 2. Adjusting the equipment tire spacing to avoid running on the ridges.	
Other Comments:	